

2. (Amended) A self-replicating vector of claim 1 wherein the bovine papilloma nucleotide sequences are nucleotide sequences of bovine papilloma virus type 1 and the heterologous nucleotide sequence is selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, and a nucleotide sequence encoding a fragment thereof capable of eliciting an immunological response in a recipient.
3. (Amended) A self-replicating vector of claim 1 wherein the heterologous nucleotide sequence encodes the HIV-1 NEF protein (SEQ ID NO:1).
4. (Amended) A self-replicating vector of claim 1 wherein E1 is under the control of the  $\text{sr}\alpha\text{L}$  promoter or the thymidine kinase promoter.
5. (Amended) A self-replicating vector of claim 4 which is selected from the group consisting of pBNtkREV, pBNsr $\alpha$ TAT, and pBNsr $\alpha$ NEF as shown in Figures 2, 3, and 4 respectively.
6. (Amended) A vaccine for DNA immunization against HIV consisting essentially of a self-replicating vector of claim 1.
7. (Amended) A vaccine for DNA immunization against HIV consisting essentially of a mixture of vectors, wherein at least one of the mixture of vectors is a self-replicating vector of claim 1.
8. (Amended) A method for preparing a self-replicating recombinant vector of claim 1, said method comprising
- A) inserting a heterologous nucleotide sequence encoding the HIV regulatory protein NEF, REV or TAT or an immunologically active fragment thereof into a vector comprising bovine papilloma virus nucleotide sequences consisting essentially of
- (i) a bovine papilloma E1 gene and E2 gene,

- (ii) a minimal origin of replication of a bovine papilloma virus, and
- (iii) a minichromosomal maintenance element of a bovine papilloma virus;
- B) transforming a host cell with the resulting self-replicating recombinant vector;
- C) culturing the host cell; and
- D) recovering said vector.

9. (Amended) The method of claim 8 wherein the host cell is an *E. coli* cell.

10. (Amended) A method of DNA immunization against HIV comprising immunizing a person with a vaccine of claim 6 to induce a cytotoxic T lymphocyte response.

11. (Amended) A method of DNA immunization against HIV comprising immunizing a person with a vaccine of claim 7 to induce a cytotoxic T lymphocyte response.

12. (Amended) A method comprising administering to a person in need thereof an immunologically effective amount of a self-replicating vector of claim 1, and expressing the NEF, REV or TAT protein or an immunologically active fragment thereof in said person.

13. (Amended) A method comprising administering to a person in need thereof an immunologically effective amount of a mixture of vectors, wherein at least one of the mixture of vectors is a self-replicating vector of claim 1.

**IN THE ABSTRACT**

Kindly enter the attached Abstract of the Disclosure.

**IN THE SEQUENCE LISTING**

Kindly enter the attached paper and computer readable forms of the Sequence

Listing.